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(54) Device for opening screwed lids and the like

(57) The invention relates to a device (100) for opening screwed lids or rotating various objects. The device comprises a handle (1) with two portions (3.4), and a loop (2) fastened to one handle portion. The loop is tightened around the edge of the lid by squeezing the handle portions (3,4) against each other, whereby a cam (10) in the handle portion locks the loop relative to the handle, and a loop end and the end of the handle portion close to the lid move closer to each other, which increases the tightening of the loop around the lid.

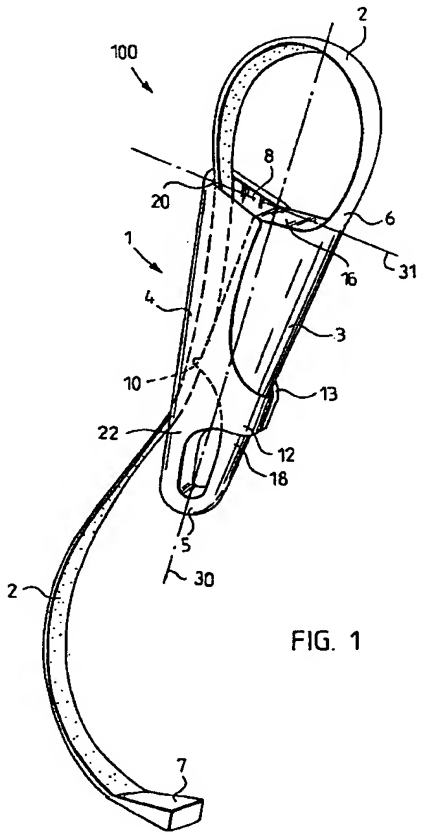

FIG. 1

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Description

Field of the Invention

This invention relates to a device for opening screwed lids and the like, comprising a handle having two portions displaceable relative to each other, and a flexible loop means to be positioned around the lid and tightened against it.

Background of the Invention

Opening the screwed lid of different kinds of containers, particularly vacuum containers, such as cans and bottles, often causes problems in homes. To facilitate the opening, various devices have been invented which comprise a loop to be positioned around the lid and a handle attached to the loop for increasing the turning force. One such device is disclosed in U.S. Patent 4,889,018 issued on December 26, 1989 to Shaffer. It comprises a loop attached to a handle at its one end only. To unscrew the lid, the free end of the loop is positioned between the edge of the lid and the end of the handle, whereafter the handle is pressed against the lid so that the free end of the loop will lock in position. This device requires a relatively great handiness from the user, as the free loop end may easily slip away from between the lid edge and the handle end.

Another known solution is disclosed in German Published Patent Application DE 3 151 035 A1, published on July 7, 1983 naming Kopineck et al. as inventors. In this case, the handle is divided longitudinally into two portions slidable relative to each other. The loop ends are fastened to the different handle portions. To open the lid, the loop is positioned around the lid and one of the handle portions is displaced away from the lid until the loop tightens around the lid, and the handle portions are then interlocked by means of a screw. Finally, the handle is turned in the opening direction of the lid. This known lid opener is too complicated to use to become widely used in households. In addition, the mutually movable handle portions make it impossible to grip the handle firmly.

Summary of the Invention

The present invention facilitates the opening of screwed lids by allowing a flexible loop to be tightened around the lid and locked in the tightened state in an extremely simple way. The device according to the invention is characterized in that the handle portions are interconnected so that they are moveable towards and away from each other, and in that the loop means is arranged to pass between the handle portions. The handle portions have locking means cooperating with each other so as to lock the loop means to the handle to facilitate opening the lid.

In the device according to the invention, the loop can be tightened in its final position around the lid and locked in this position by a single movement: by squeezing the handle portions closer to each other. This squeezing movement is so natural that the device should alleviate the problems associated with conventional devices of this type. The device is especially simple to use if one end of the loop means is fastened to one of the handle portions.

If the handle is elongated and the loop means is fastened to one handle end, it is preferable to interconnect the handle portions by means of a hinge positioned at the handle end opposite to the end to which the loop means is fastened.

The handle portions can be made moveable relative to each other, as required by the invention, simply by interconnecting the handle portions at the end remote from the loop. This solution is also recommended for the reason that the handle portions can thus easily be arranged to move over the greatest distance relative to each other at the handle end close to the loop. In that case, the loop can be tightened around the lid in an amount greater than the relative movement of the regions of the handles which are actuated by the user. In addition, if the locking surfaces of the handle are positioned close to the hinge end of the handle, the device can in a simple way be made to operate in the right order, that is, the loop is first locked in position and then tightened around the lid.

To ensure that the loop will be locked reliably, it is preferable that the locking means of the handle to be formed by a cam provided in one handle portion and a support surface provided in the opposite handle portion. As the loop surface to be positioned against the lid is often made uneven to achieve good gripping properties, it is preferable to position the cam in the handle portion to which the loop means is connected.

To facilitate positioning the loop around the lid before the loop is actually tightened, it is advisable to provide one of the handle portions with an opening between the locking means and the hinge. The loop means protrudes through this opening from the space between the handle portions.

The device according to the invention can be formed as an integral body if it is made of a suitable material, such as plastic.

Brief Description of the Drawings

In the following, a preferred embodiment of the device according to the invention will be described in greater detail with reference to the attached drawings, where

Figure 1 is a perspective view of a device according to the present invention; and

Figures 2 and 3 are longitudinal sectional views of the device before and after the loop is tightened around the lid.

Detailed Description of the Preferred Embodiment

The opening device or hand tool 100 for screwed lids or rotatable object 14 shown in the figures comprises an elongated handle 1 and a flexible loop means 2. Handle 1 has a first handle portion 3 and a second handle portion 4. First handle portion 3 includes a proximal end 16 and a distal end 18 opposite proximal end 16. Second handle portion 4 includes a second proximal end 20 and a second distal end 22 opposite proximal end 20.

First and second handle portions 3, 4 are interconnected at distal end 18 and second distal end 22 by a hinge 5. Loop means 2 includes a loop end 6 attached to first handle portion 3 at proximal end 16. Loop means 2 further includes a free end 7 having a thickening portion. Hinge 5 allows first and second handle portions 3, 4 to be moved towards and away from each other substantially in the direction of the tangent at the points of contact between handle portions 3, 4 and lid 14. Alternatively stated hinge 5 allows first and second handle portions 3, 4 to be moved towards and away from each other substantially perpendicular to a longitudinal axis 30 of handle 1.

Second handle portion 4 is U-shaped in cross-section so that it forms a trough 8 opening towards first handle portion 3. First handle portion 3 in turn has such dimensions that it can be fitted at least partly into trough 8 of second handle portion 4. The outward surface of the second handle portion 4 is provided with an opening 9 close to hinge 5. Opening 9 is in communication with trough 8. As appears from the figures, loop means 2 passes through trough 8 and opening 9 so that its free end 7 is positioned outside handle 1. When the device 100 is in a position for use, loop means 2 is thus positioned partially between first and second handle portions 3, 4.

The first handle portion 3 is provided with a projecting cam 10 in its surface facing the bottom of trough 8. Cam 10 is positioned close to distal end 18 of first handle portion 3 near hinge 5. Trough 8 of second handle portion 4 includes a support surface 11 located opposite to cam 10.

Second handle portion 4 is provided with projections 12 and 13 which extend toward and encircle first handle portion 3 forming a stop thereby limiting the movement of handle portions 3 and 4 away from each other.

The opening device 100 according to the invention operates in the following way. Loop means 2 is drawn out of handle 1 to such an extent that it reaches loosely around lid 14, see Figure 2. At this stage, hinge 5 keeps the first and second handle portions 3, 4 as far from each other as allowed by projections 12, 13. When handle 1 is then squeezed by hand against the action of hinge 5, first handle portion 3 enters trough 8 of second handle portion 4. As a result of the movement of first and second handle portions 3, 4 towards each other, cam 10 presses loop means 2 against support surface 11 of second handle portion 4, thus locking loop means 2 so that it is not able to move in its longitudinal direction relative to handle 1, i.e. substantially along axis 3. As a result of the same movement, proximal end 16 of first handle portion 3 and second proximal end 20 of second handle portion 4 move closer to each other substantially in the direction perpendicular to longitudinal axis 30 of handle 1, which causes loop means 2 to be tightened around lid 14. Handle 1 is squeezed until loop means 2 has tightened appropriately around lid 4, see Figure 3, whereafter handle 1 is turned in the opening direction of lid 14 to open lid 14.

The device 100 according to the invention is not limited to the above embodiment, but it may vary within the scope of the attached claims. For example, the shape of first and second handle portions 3, 4 may be quite different from that shown in the figures, and hinge 5 may be replaced e.g. by flexible fastening means positioned substantially centrally in the handle portions. The joint between the handle portions may also be such that one handle portion remains immovable relative to the lid 14 and only the other portion moves perpendicularly or obliquely towards the first-mentioned portion when the loop is tightened. Cam 10 and the support surface 11 can be replaced with other arrangements, and cam 10 and support surface 11 may be formed in regions of the handles other than those illustrated in the Figures. Parts 2, 3 and 4 may form an integral body or be separate bodies fastened to each other. Loop means 2 may also be fully separate from handle 1, in which case its both ends pass between the first and second handle portions 3, 4.

The device 100 according to the invention can, of course, also be used for other purposes than opening screwed lids 14, such as closing screwed lids 14, and generally loosing or fastening any screwed objects or rotating entire assemblies.

Claims

1. Device for opening screwed lids, comprising

a handle (1) having a first handle portion (3) and a second handle portion (4);

a loop means (2) to be positioned around a lid (14) and connected to the handle, the loop (2) being provided to pass between the handle portions (3, 4);

the first and second handle portions (3, 4) being interconnected such that they are movable towards and away from each other substantially perpendicular to a longitudinal axis of the handle (1), **characterized** by

means (10, 11, 16, 20) for locking and tightening the loop (2) about the lid (14) by movement of the first and second handle portions (3, 4) toward each other.

2. Device according to claim 1, **characterized** in that the loop means (2) is fastened at its one end (6) to one handle portion (3).

3. Device according to claim 2, **characterized** in that the handle (1) is elongated and the loop means (2) is fastened to one end of the handle, the handle portions (3, 4) being interconnected by means of a hinge (5) positioned at the handle end opposite to said end to which the loop means is fastened.

4. Device according to claim 3, **characterized** in that the hinge (5) is integral with the handle portions (3, 4).

5. Device according to claim 3, **characterized** in that the locking means (10, 11) is positioned proximate to the hinge.

6. Device according to claim 1, **characterized** in that the locking means is formed by a cam (10) positioned in one handle portion and a support surface (11) positioned in the opposite portion.

7. Device according to claim 6, **characterized** in that the cam (10) is positioned in the handle portion (3) to which the loop means (2) is fastened.

8. Device according to claim 1, **characterized** in that the loop means (2) is integral with the handle (1).

9. Device according to claim 3, **characterized** in that one of the handle portions (4) has an opening (9) between the locking means (10, 11) and said hinge, the loop means (2) projecting from a space between the handle portions (3, 4) through said opening.

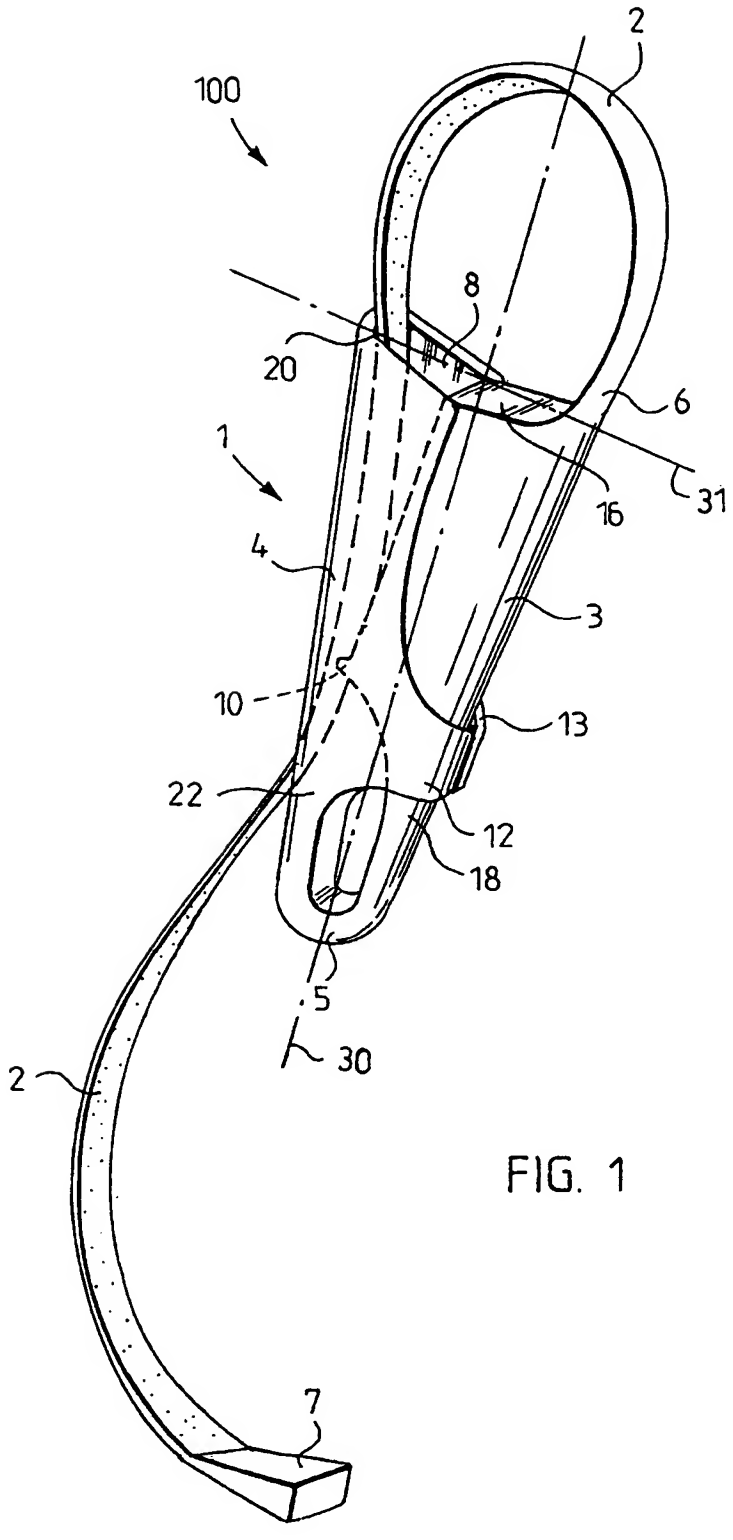

FIG. 1

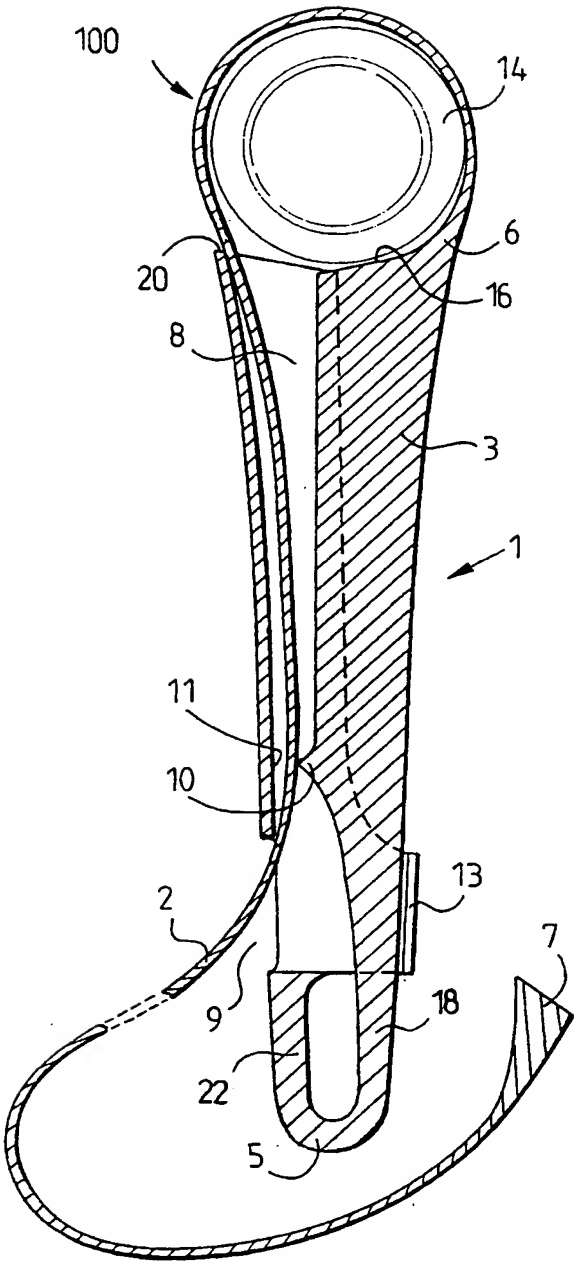
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FIG. 2

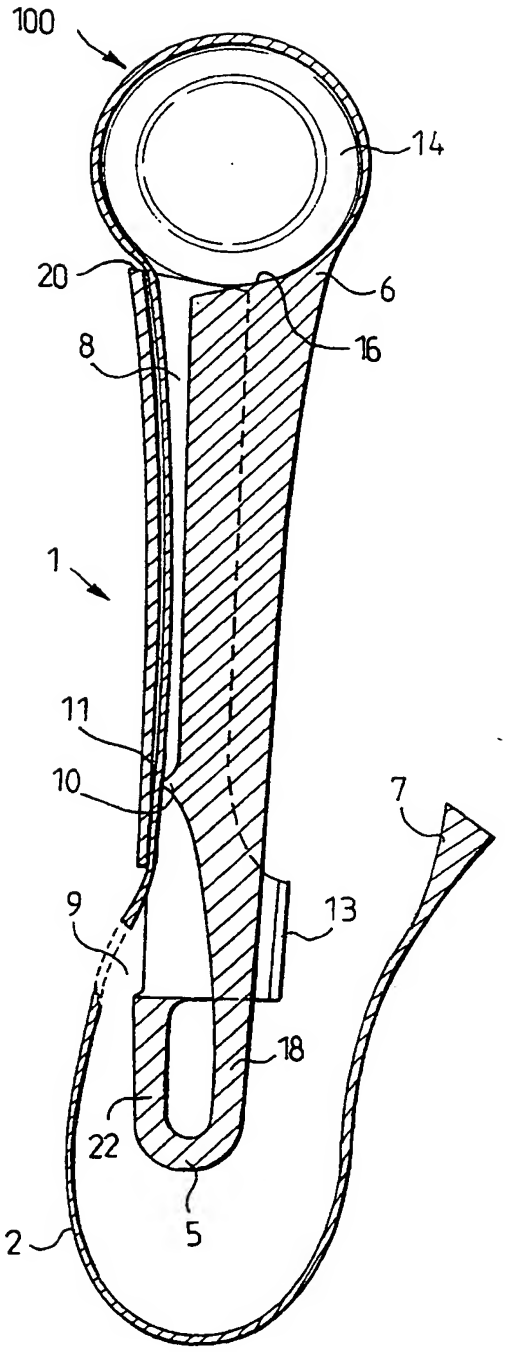
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FIG. 3

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 96 30 0888

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	CA-A-1 156 501 (KLEIN) * the whole document *	1,2,6,7	B67B7/18
X	US-A-4 082 016 (VONUSA) * figures 3,4 *	1,2	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

B67B
B25B

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	13 May 1996	Martínez Navarro, A.

CATEGORY OF CITED DOCUMENTS

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